

# Mammalia, Chiroptera, Phyllostomidae, *Platyrrhinus recifinus* (O. Thomas, 1901): First confirmed record in the state of Santa Catarina, southern Brazil

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**ABSTRACT:** We report the first confirmed record of *Platyrrhinus recifinus* to Santa Catarina state, south of Brazil. The distribution of this species was expanded approximately 350 km south of its previous known limit.

The genus *Platyrrhinus* Saussure, 1860 occurs from southern Mexico to northern Argentina (Gardner 2008). The diagnostic characters for the genus are: presence of two accessory cusps on the posterior face of P4, presence of three upper molars, and presence of a fringe of fur at the edge of urotagium (Velazco 2005).

Nowadays *Platyrrhinus* is formed by at least 18 species (Velazco *et al.* 2010), but this complex of species presents difficulties in their identification (Velazco 2005). According to Zortéa (2007) and Velazco *et al.* (2010), seven species occur in Brazil: *P. brachycephalus* (Rouk and Carter, 1972), *P. fusciventris* Velazco, Gardner and Patterson, 2010, *P. helleri* (Peters, 1866), *P. incarum* (Thomas, 1912), *P. infuscus* (Peters, 1880), *P. lineatus* (É. Geoffroy, 1810), and *P. recifinus* (O. Thomas, 1901).

*Platyrrhinus recifinus* has confirmed records in northeast (Paraíba, Bahia, Espírito Santo, Ceará and Pernambuco states; Peracchi and Albuquerque 1993; Sousa *et al.* 2004; Faria *et al.* 2006; Zortéa 2007; Piccinini 1974 apud Gardner 2008) and southeast Brazilian states (Minas Gerais, Rio de Janeiro and São Paulo; Pedro *et al.* 2001; Esbérard and Bergallo 2005; Tavares *et al.* 2007), and recently the species was recorded in the state of Paraná, southern Brazil (Scultori *et al.* 2009). *Platyrrhinus recifinus* was considered endemic of Brazil, but Tavares and Velazco (2010) reported its occurrence also for Guyana and Suriname.

The biology of *P. recifinus* is little known (Gardner 2008). In part the lack of information may be associated to the low capture rates (*e.g.* Dias *et al.* 2002; Passos *et al.* 2003; Faria 2006; Tavares *et al.* 2007; Nobre *et al.* 2009). In Brazil this species has been sampled in several environments, such as preserved forests and impacted areas (*e.g.* Faria 2006; Gardner 2008; Tavares *et al.* 2007; Dias and Peracchi 2008). Like the other species of the genus, *P. recifinus* probably has a frugivorous diet (Zortéa 2007). The species is included in the List of Brazilian Fauna Threatened of Extinction, in the "Vulnerable" category,

due to habitat destruction, deforestation and fires in the forest (Machado *et al.* 2008). Globally *P. recifinus* is listed in the category "least concern" because it occurs in areas with different levels of disturbance Sampaio *et al.* (2008). We report the first confirmed record of *P. recifinus* in Santa Catarina state, expanding the southern limit of its distribution.

The record reported here was obtained during a study of the vertical structure of the bat community in a forest remnant in southern Brazil, between July 2005 and September 2010. Bats were captured with mist nets installed in different strata (understory, sub-canopy and canopy) opened for six hours after the sunset. A total of 74 nights were sampled, 39 in the understory and 35 in sub-canopy and canopy. The total sampling effort, calculated according to Straube and Bianconi (2002), was 26.910 m<sup>2</sup>.h in the understory and 26.460 m<sup>2</sup>.h in the sub-canopy and canopy. The permit to carry out the sampling was provided by the Instituto Chico Mendes de Conservação da Biodiversidade – ICMBio under number 22648-1 SISBIO.

The area where the record occurred is situated in Rancho dos Bugres, locality of the Pedras Grandes city (28°29'40" S, 49°15'24" W) in the southern state of Santa Catarina (Figure 1). The area is a Tropical Rain Forest remnant (Veloso *et al.* 1992) of about 7 ha with different succession stages, connected to larger forest remnants. According to the classification of Köppen the climate is Cfa (temperate subtropical), with average annual temperatures ranging between 22 and 24 °C in the warmer months and 13 and 15 °C in winter ones. The mean of annual rainfall is between 1250 and 1500 mm (Nimer 1990).

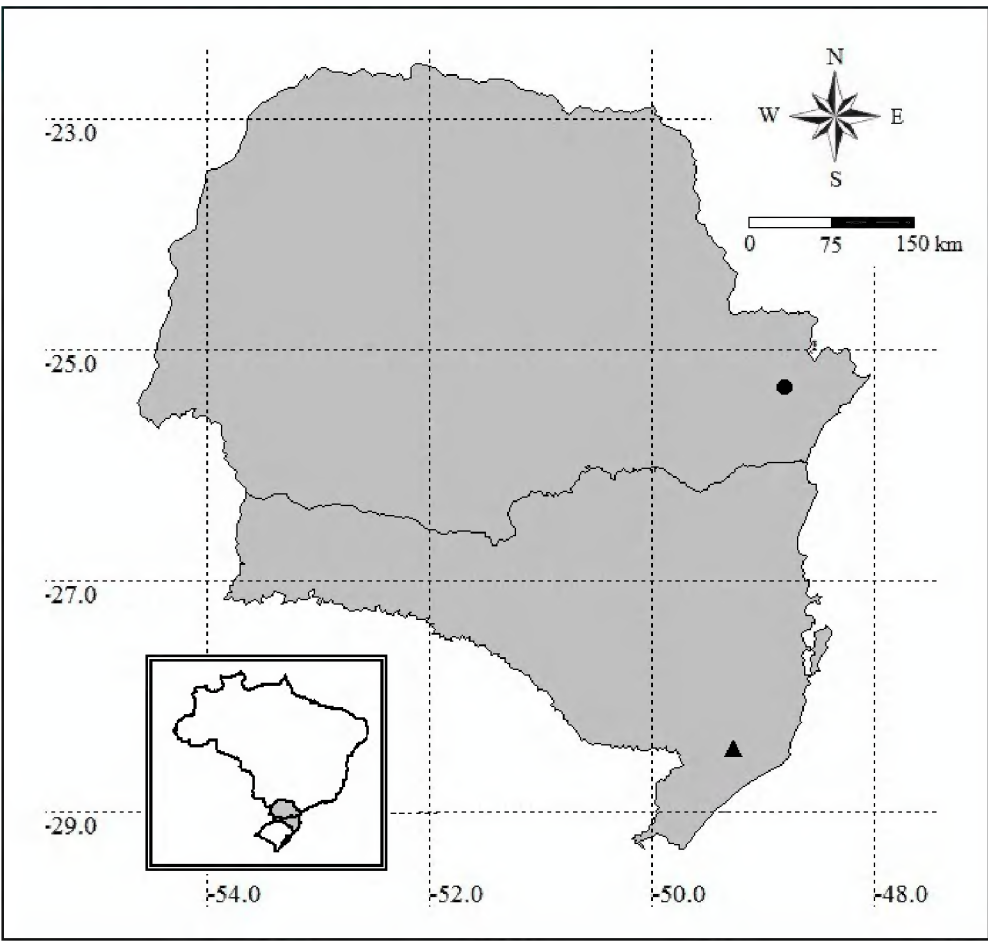
On April 17<sup>th</sup>, 2010, at 23:16 h one adult male *P. recifinus* was captured in a mist net installed at 7.5 m above the ground (canopy). The specimen was collected and incorporated into the scientific collection of the Departamento de Zoologia, Instituto de Biociências da Universidade Federal do Rio Grande do Sul (DZMAM 1230). Measurements of this specimen (Table 1) were obtained



using a caliper to the nearest 0.01 mm and following the protocol described by Taddei *et al.* (1998) and Scultori *et al.* (2009). Species identification was based on Velazco (2005), Gardner (2008), Dias and Peracchi (2008), Tavares and Velazco (2010) and Velazco *et al.* (2010). The diagnostic characters observed were: interramal vibrissae absent; forearm length less than 45 mm; lists facial and dorsal evident; a deep fossa in the hypoconal basin of the second upper premolar (P4) and a stylid cusp absent between the metaconid and the protoconid of first lower molar (m2); upper incisors completely separated and lower incisors with few distinct lobes and margins nearly straight.

Studies on the bat fauna of Santa Catarina include 46 species (Passos *et al.* 2010), with no reference to *P. recifinus*. Zortéa (2007) and Tavares and Velazco (2010) have reported the occurrence of this species in Santa Catarina, but they did not specify the site nor the scientific collection where specimens were deposited. Our study presents the first confirmed record of *P. recifinus* for Santa Catarina, extending in 350 km the southern limit of its distribution as described by Scultori *et al.* (2009).

Tavares and Velazco (2010) suggest that *P. recifinus* presents clinal variation, in which the specimens from southern Brazil would be morphologically larger. This variation was verified by Scultori *et al.* (2009) comparing specimens captured in Paraná state, with others from the southeast and north of Brazil. Nevertheless, for the specimen sampled by us, only the measurements of body length, length of the series of jaw teeth, and



**FIGURE 1.** Locality records of *Platyrrhinus recifinus* in the states of Paraná (Scultori *et al.* 2009) ( ● ) and Santa Catarina (present study) ( ▲ ), in southern Brazil.

width between the upper canines were above the range described for this species in other regions (Table 1). According to Scultori *et al.* (2009) it is necessary to study a larger number of individuals in order to obtain more reliable data about the possible morphological variations occurring along the latitudinal gradient of the species distribution.

**TABLE 1.** Measurements of *P. recifinus* in southern Santa Catarina and from studies conducted in southeastern and southern Brazil. Min = minimum and Max = maximum. Total body length (TL); hind foot length (HL); length of forearm (FA); greatest length of skull, including incisors (GLS); condyloincisive length (CIL); basal length, including incisors (BL); palatal length, including incisors (PL); length of maxillary toothrow (MAXT); breadth across upper canines (BAC); breadth across upper molars (BAM); postorbital breadth (PB); zygomatic breadth (ZB); breadth of braincase (BB); mastoid breadth (MB); mandibular length (ML); length of mandibular toothrow (MANT).

| Character | Dias <i>et al.</i> (2002)<br>Min – Max (n = 2) | Dias and Peracchi (2008)<br>Min – Max (n = 9) | Scultori <i>et al.</i> (2009)<br>Min – Max (n = 5) | This study (n = 1) |
|-----------|--|---|--|--------------------|
| TL        | 50.20 – 58.30                                  | 54.14 – 59.12                                 | 57.92 – 64.38                                      | 61.15              |
| HL        | 9.20 – 10.50                                   | 10.50 – 13.54                                 | 11.84 – 13.44                                      | 12.66              |
| FA        | 41.70 – 42.00                                  | 41.66 – 43.54                                 | 42.64 – 45.96                                      | 42.60              |
| GLS       | 23.90 – 24.20                                  | 23.50 – 25.24                                 | 24.56 – 25.50                                      | 24.50              |
| CIL       | 21.60 – 22.00                                  | 22.04 – 22.98                                 | 22.36 – 23.42                                      | 22.31              |
| BL        | 19.40 – 19.80                                  | 19.84 – 20.66                                 | 19.82 – 20.84                                      | 20.17              |
| PL        | 11.30 – 11.60                                  | 11.74 – 12.40                                 | 11.88 – 12.76                                      | 11.97              |
| MAXT      | 8.70 – 8.80                                    | 9.00 – 9.56                                   | 9.20 – 9.72  | 9.77               |
| BAM       | 10.20 – 10.40                                  | 10.28 – 10.98                                 | 10.74 – 11.44                                      | 11.22              |
| BAC       | 6.00 – 6.10                                    | 6.00 – 6.44                                   | 6.28 – 6.70  | 6.72               |
| PB        | 5.50 – 5.70                                    | 5.54 – 6.24                                   | 5.84 – 6.02  | 5.63               |
| ZB        | 13.80 – 14.10                                  | 13.74 – 14.64                                 | 14.58 – 14.98                                      | 14.36              |
| BB        | 10.30 – 10.50                                  | 10.20 – 10.74                                 | 10.50 – 11.22                                      | 10.39              |
| MB        | 11.70 – 12.30                                  | 11.76 – 12.12                                 | 12.08 – 12.60                                      | 12.14              |
| ML        | 15.60 – 16.00                                  | 16.20 – 16.96                                 | 16.18 – 17.20                                      | 15.80              |
| MANT      | 9.50 – 9.50                                    | 9.54 – 10.26                                  | 9.62 – 10.48                                       | 9.67               |



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